

REMARKS

Claims 1, 2, 20, 21, 33 and 34 have been amended, claims 12 and 32 have been canceled, and claims 37 and 38 have been added. Therefore, claims 1-11, 13-31 and 33-38 are pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Section 102(b) Rejection:

The Examiner rejected claims 1-3, 5, 6, 9, 10, 13-23, 26 and 28-36 under 35 U.S.C. § 102(b) as being anticipated by Crater et al. (U.S. Patent 5,146,588) (hereinafter, "Crater"). Although Applicants traverse this rejection, Applicants submit that the rejection is moot in view of the amendments to claims 1, 20, 33 and 34. Applicants further submit that the pending claims are not anticipated by Crater for at least the following reasons.

With respect to claim 1, Crater fails to teach or suggest an apparatus comprising a memory configured to provide an addressable block operand storage space and to store block operands within the block operand storage space; a functional unit configured to perform a block operation on one or more of the block operands to generate a block result; and a cache accumulator memory coupled to the memory and the functional unit, wherein the cache accumulator memory comprises a plurality of block storage locations, wherein the cache accumulator memory is configured to receive a set of one or more instructions to perform a first accumulation operation, wherein a first instruction in the set uses a first address in the memory to identify a first block operand; wherein the plurality of block storage locations are configured to cache a portion of the block operand storage space of the memory and to accumulate an intermediate result of the first accumulation operation, wherein the intermediate result is both a result of and an operand of the first accumulation operation, such that during the first accumulation operation, the plurality of block storage locations are concurrently configured both to cache certain ones of the block operands and to accumulate the intermediate result of the first accumulation

operation; and wherein in response to receiving the first instruction in the set, the cache accumulator memory is configured to access an associativity list comprising an indication that a first set of the block storage locations is allocated to the first accumulation operation and, in response to the indication, to provide the first block operand to the functional unit from the first set of block storage locations and to store the block result generated by the functional unit into the first set of block storage locations.

In rejecting claim 1, the Examiner asserts that Crater's cache memory 113 as a whole is configured to cache data between a mass memory system 103 and a number of host processors 11, 12, and further that cache memory 113 includes cache memory elements 340-355 and a redundancy accumulator 301. However, Applicants note that significant structural and functional differences exist between amended claim 1 and Crater. Specifically, amended claim 1 requires that the block storage locations of a cache accumulator be configured to cache a portion of a block operand storage space of a memory and to accumulate intermediate results of an accumulation operand, such that during the accumulation operation, the same set of block storage locations is concurrently configured both to cache certain block operands and to accumulate an intermediate result of an accumulation operation.

Crater clearly teaches the implementation of caching and accumulation functions within separate, non-overlapping structural elements within cache memory 113. That is, as shown in FIG. 4 and described in detail at col. 8, line 56 – col. 10, line 9, storage of intermediate accumulation results is performed within redundancy accumulator 301. Redundancy accumulator 301 is not a cache of any memory. As shown in FIG. 3 and described at col. 7, lines 6-21, Crater specifically provides cache memories 340-355 for the caching of block operands en route to or from storage array 103 and processors 11, 12.

Crater's use of separate structures to implement the functions of accumulation and caching is completely the opposite of the requirements of Applicants' claim 1, which requires that the same set of block storage locations perform both caching and

accumulation. Crater makes no suggestion whatsoever that these functions could be combined or that such a combination would in any way be desirable. Thus, Crater cannot be said to anticipate claim 1, nor is claim 1 rendered obvious in view of Crater alone or in combination with the other cited references.

A similar argument applies to independent claims 20, 33 and 34, each of which has been amended to recite limitations similar to amended claim 1. Applicants therefore submit that independent claims 1, 20, 33 and 34 are distinguishable over the cited references. Applicants further note that numerous ones of the dependent claims recite additional distinctions over the cited references. However, as the independent claims have been shown to be distinguishable, further discussion of the dependent claims is unnecessary at this time.

Section 103(a) Rejection:

The Examiner rejected claims 4, 7, 8, 24 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Crater in view of Handy ("The Cache Memory Book: The Authoritative Reference on Cache Design"), and claims 11, 12 and 27 as being unpatentable over Crater et al. (U.S. Patent 4,888,679) (hereinafter "Crater '679"). Although Applicants traverse these rejections, Applicants submit that they are moot in view of the amendments to the independent claims. Applicants further submit that each of the dependent claims is distinguishable for at least the reasons given above with respect to the independent claims.

CONCLUSION

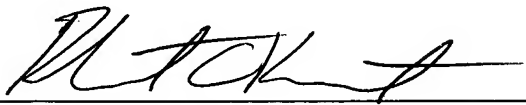
Applicants submit the application is in condition for allowance, and prompt notice to that effect is respectfully requested.

If any extension of time (under 37 C.F.R. § 1.136) is necessary to prevent the above-referenced application from becoming abandoned, Applicants hereby petition for such an extension. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5681-05300/RCK.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Notice of Change of Address
- ☐ Other:

Respectfully submitted,



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